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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,353	06/23/2003	Sai Kwok	71748/7262	1703
22242	7590	06/02/2004	EXAMINER	
FITCH EVEN TABIN AND FLANNERY 120 SOUTH LA SALLE STREET SUITE 1600 CHICAGO, IL 60603-3406			LE, DINH THANH	
			ART UNIT	PAPER NUMBER
			2816	

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/602,353

Applicant(s)

KWOK, SAI

Examiner

Art Unit

DINH T. LE

2816

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --***Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
2a) This action is FINAL. 2b) This action is non-final.
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-29 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) Claim(s) _____ is/are allowed.
6) Claim(s) 1-29 is/are rejected.
7) Claim(s) _____ is/are objected to.
8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 3/29/04
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date: _____
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____

DETAILED ACTION

Specification

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections

Claim Rejections - 35 USC § 112

Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction or clarification is required.

In claim 1, the recitation "the substantial cancellation" on line 15 lacks clear antecedent basis. The same is true for claims 12, 19 and 29.

The remaining claims are dependent from the above claims and therefore also considered indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 9-13, 15-25 and 27-29 are rejected under 35 USC 102 (b) as being anticipated by Fikart et al (US 5,434,522) in view of Satoru (JP362176308).

Fikar et al discloses in Figure 1 a frequency doubler circuit comprising:

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- a full wave rectifier circuit (14); and
- a differential amplifier stage (42) coupled to the rectifier for generating an output signal including a desired output harmonic having a frequency that is double the first frequency, wherein the summing results in the substantial cancellation of unwanted output harmonics in the output signal.

However, Fikart et al does not disclose that the rectifier stage comprising a first rectifier stage and a second rectifier stage.

Satoru teaches in Figure 1 a frequency doubler circuit comprising a phase shifting circuit (8, 9) for providing a first signal to a first rectifier (16) and an offset phase signal to a second rectifier (17) for providing an excellent wide band characteristic, see Constitution.

It would have been obvious to a person having skill in the art at the time the invention was made to employ the phase shifter circuit and the rectifier stages taught by Satoru in the circuit of Fikart et al for the purpose of providing an excellent wide band characteristic and easily fabricated on an integrated circuit.

Noted that, since the amplifier (42) of Fikart et al subtracts the even harmonic components and adds the odd harmonic component together; obviously, the even harmonic would be cut down depending upon the phase shift between the rectified signals applied to the input terminals of the amplifier. Thus, adjusting the phase shift of the rectified signals to achieve 20 dBc attenuation for the even harmonics or 40 dBc for unwanted harmonic would have been obvious and is considered to be matter of a design expedient for an engineer.

Allowable Subject Matter

Claims 8, 14 and 26 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The claims are allowable because the prior art of record does not show the phase offset of 90 degrees.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DINH T. LE whose telephone number is (571) 272-1745. The examiner can normally be reached on Monday-Friday (8AM-7PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIMOTHY CALLAHAN can be reached at (571) 272-1740.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DINH LE
Primary Examiner

May 21, 2004